State of Utah

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DAQP-048-21

May 28, 2021

Debra H. Thomas
Acting Regional Administrator
Environmental Protection Agency, Region 8
1595 Wynkoop Street
Denver, Colorado 80202-1129

RE: Retrospective 179B(b) Demonstration for Utah's Northern Wasatch Front Ozone Nonattainment Area

Dear Ms. Thomas:

The Utah Division of Air Quality (UDAQ) is formally submitting an International Transport Demonstration (179B(b)) to the Environmental Protection Agency (EPA) for the Northern Wasatch Front Ozone Nonattainment Area (NWF NAA). UDAQ appreciates EPA's engagement during the development of this demonstration and for the valuable feedback and review received throughout this process.

Section 179B(b) of the Clean Air Act (CAA) allows a nonattainment area to retrospectively avoid re-classification to a higher nonattainment status if a state can demonstrate that the area would have met the National Ambient Air Quality Standard (NAAQS), but for the influence of pollution emanating from an international source. On August 3, 2018, the EPA classified the NWF NAA as a marginal nonattainment area with an attainment date of August 3, 2021 (83 FR 25776). The design value from 2018-2020 is used to determine if the area attained the standard by the attainment date. Validated data in EPA's Air Quality System (AQS) show a 3-year average of the 4th high 8-hour ozone value at Bountiful of 77ppb, which is 7ppb over the NAAQS.

EPA published 179B guidance (EPA-457/P-20-001F, December, 2020) that details what a successful 179B demonstration should include.

Accompanying this letter are three technical analyses that fall short of providing a refined full photochemical demonstration (including source apportionment) that would be preferred, but indicate what would likely be found in such a demonstration. These include a Synoptic Pattern Analysis and a Backward Dispersion HYSPLIT analysis performed by UDAQ's Technical Analysis team, as well as a photochemical analysis performed by Ramboll at the direction of the

Utah Petroleum Association and Utah Mining Association. All three analyses focused on the summer months (June – August) of 2017 with an emphasis on a period of time leading up to and through observed NAAQS 8-hour ozone exceedances.

The UDAQ-led Synoptic Pattern Analysis found that ozone exceedance days largely occur when synoptic scale high-pressure systems are present. As a result of these stable high-pressure systems the NWF experiences a lack of frontal passages, low surface winds, and high temperatures at the controlling monitoring station. These results indicate that local photochemical production of ozone resulting from nearby anthropogenic precursor emissions are the dominant driver of exceedance days in the NWF.

UDAQ performed a backward dispersion analysis using the HYbrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model based on maximum daily 8-hr average ozone observations within the NWF during July 2017, when multiple ozone exceedances were observed. The HYSPLIT backward trajectory analysis found that while the NWF is impacted in-part by source emissions from outside the U.S., it did not identify any significant difference in transport patterns between exceedance and non-exceedance days. Current guidance provided by the EPA on 179B(b) states that "the demonstration should include analyses showing that the air quality data on specific days in the past were affected by international emissions to an extent that prevented the area from attaining the standard by the attainment date."

In addition to the two UDAQ-led analyses described above, a photochemical analysis performed by Ramboll identified a relatively consistent contribution of ozone from international sources to background concentrations throughout the intermountain west. However, the model consistently underpredicted ozone concentrations at the controlling monitor site on exceedance days. This underprediction makes it difficult to attribute the total amount of contribution from internationally transported ozone at the controlling monitor.

These three analyses taken together indicate that in the NWF, exceedances of the 8-hour ozone NAAQS typically occur on hot, atmospherically stable summer days and that international transport of ozone contributes consistently to background concentrations throughout the intermountain west, but does not increase in contribution on specific exceedance days.

We believe that this 179B(b) demonstration is novel since it fails to show a significant contribution on specific exceedance days compared to non-exceedance days, but instead indicates that international transport has a relatively constant contribution to background ozone concentrations throughout the NWF NAA. The elevated background concentrations make it particularly difficult to meet the 2015 8-hour ozone NAAQS in the NWF. Beyond the distinction of specific daily contribution vs. regional background, it is UDAQ's understanding that this is the first instance of a 179B(b) demonstration for a non-border region, for which the guidance states "technical demonstrations for non-border areas may involve additional technical rigor and resources compared to a demonstration for border areas."

In addition to the three analyses outlined here and described in detail in the included demonstration, the UDAQ Technical Analysis team has provided a modeling framework for a more refined photochemical model that could be conducted to further examine international

contributions of ozone to the NWF. This modeling framework addresses many of the limitations with the work conducted to date, but conceptually is highly similar in nature to the efforts undertaken so far. To perform the full photochemical modeling exercise will require a significant amount of time and resources from UDAQ. It is the belief of the UDAQ staff that this additional modeling effort will not result in any significant new findings, nor will it change the current conclusions outlined above.

UDAQ staff is very concerned that continued work to refine the modeling for this 179B(b) analysis is hindering any progress on the development of the modeling necessary to successfully address the ozone problems in the Uinta Basin, as well as the development of the modeling necessary to complete a successful State Implementation Plan for the NWF NAA, should EPA deny this 179B(b) demonstration. Given that to date, all analyses indicate that Utah's NWF NAA may not meet the traditionally recognized criteria of a 179B(b) demonstration, UDAQ is asking the EPA to review the enclosed materials and quickly provide definitive feedback on the following:

1. Can the novel interpretation of 179B(b) for the NWF result in a satisfactory demonstration?
2. If yes, is the additional modeling exercise outlined in this packet required for a satisfactory 179B(b) demonstration, or are the materials contained herein sufficient?

UDAQ appreciates the consideration of the attached 179B(b) demonstration and we look forward to a written response with EPA's determination.

Sincerely,

Kimberly D. Shelly
Executive Director

KDS:BCB:RB:jf

May 24, 2021

Deb Thomas
Acting Regional Administrator
United States Environmental Protection Agency Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

Dear Acting Administrator Thomas,

Thank you for the cooperation of your staff in progressing the Clean Air Act Section 179B demonstration for the Northern Wasatch Front Nonattainment Area on behalf of the State of Utah. We have made measurable improvements in Utah's air quality over the years through creative problem solving, innovation, and collaboration between government, industry, and community stakeholders. While we understand that the submission of the 179B demonstration package to the Environmental Protection Agency (EPA) is just one of many steps already taken—and many more to be taken—we commend your efforts to address the complex and real drivers of ozone rather than simply checking a regulatory box.

Over the last 15 years, the Wasatch Front airshed has achieved nearly a 40% reduction in volatile organic compounds (VOC) and NOx emissions—the precursor emissions that lead to both $PM_{2.5}$ and ozone pollution. Despite this effort resulting in a major reduction in $PM_{2.5}$ pollution, the 4th highest daily 8-hour average ozone levels have remained virtually unchanged. Therefore, we strongly encourage your support of a data-driven decision not to continue pursuing policy and regulatory decisions based on the very rigid and limited controls that would be required under a State Implementation Plan (SIP) under a Moderate classification, which have shown little indication of actually reducing ozone over the last decade and a half.

The challenge of international transport of emissions and the resulting elevated ozone in the Western U.S. has been well known amongst the scientific and regulatory community for some time. In 2013, then Department of Environmental Quality (DEQ) Executive Director Amanda Smith testified to congress that a mechanism to account for background ozone would be needed for Utah or we would be destined to failure. This, of course, is exactly what Congress intended in the development of flexibility under Section 179B of the Clean Air Act.

In fact, EPA has published work indicating that only 9-20% of the local ozone comes from in-state, man-made emissions. Of that maximum 20% of in-state, man-man emissions, SIP controls could only be applied to an even smaller slice of sources, further limiting the likely success of an EPA-mandated SIP to improve ozone levels.

To support the technical understanding of the impact of international emissions DAQ is performing air quality chemistry modeling that evaluates the impacts of boundary conditions of ozone and ozone

precursor emissions from international sources as well as the transport of anthropogenic and natural emissions from within the United States. This modeling effort is the first time such a global evaluation of ozone formation has been performed by a state regulatory agency. Importantly, the same modelling work that is needed to support a 179B demonstration can provide the Division of Air Quality (DAQ) with invaluable information on what sources and regulatory tools should be targeted to actually improve air quality. Therefore, a successful 179B demonstration would allow DAQ to pursue tools more likely to reduce ozone, even if they don't meet the rigid SIP requirements under a compressed SIP timeframe. Simply put, there is much that could be done to improve air quality that does not "check the box" for a SIP, such as the innovative (and voluntary) production of Tier 3 fuels.

As you are aware, the trajectory Utah is currently on—absent a successful 179B demonstration—will move the state up the scale of ozone nonattainment, where the mandatory requirements of the Clean Air Act for emissions controls will likely result in lasting consequences for the state's economy with negligible impacts on ozone pollution. This, of course, is a lose-lose situation of the highest order for Utah and must be avoided.

We realize that additional modelling work is required and that an updated submission will need to be returned to the EPA. As elected leaders of Utah's executive and legislative branches, we urge you to remain committed to this pathway, and to base the 179B submittal review firmly on the plain language requirements of the Clean Air Act.

The Clean Air Act provides states flexibility in developing strategies to meet air quality standards in an effective, practical, and economical manner. We believe the 179B demonstration will show—via rigorous technical analysis—that "but for" the impact of ozone pollution from international sources, the Wasatch Front would attain the standard by the attainment date. Critically, we also support EPA approving a 179B pathway to provide the intended flexibility under the Clean Air Act to better understand and address this complex challenge and stand ready as partners to help broaden the toolbox with which DAQ addresses this problem, based on solid data, innovation, and cooperation – rather than overly rigid federal mandates.

Sincerely,

Spencer J. Cox
Governor
State of Utah

Deidre M. Henderson
Lieutenant Governor
State of Utah

J. Stuart Adams
President
Utah State Senate

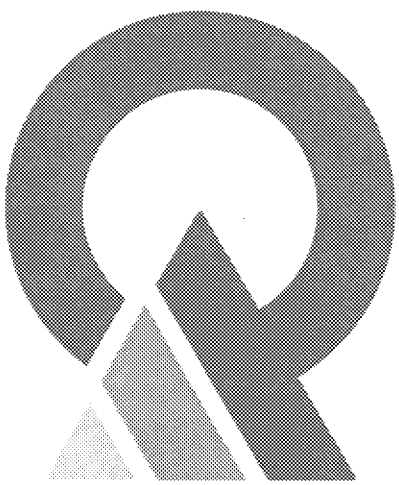
Brad R. Wilson
Speaker
Utah House of Representatives

Utah Division of Air Quality

Clean Air Act 179B(b) Demonstration

Northern Wasatch Front Ozone Nonattainment Area

05/05/2021



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